ABSTRACT OF THE DISCLOSURE

The present invention, generally speaking, picks up a voice or other sound signal of interest and creates a higher voice-to-background-noise ratio in the output signal so that a user enjoys higher intelligibility of the voice signal. In particular, beamforming techniques are used to provide optimized signals to the user for further increasing the understanding of speech in noisy environments and for reducing user listening fatigue. In one embodiment, signal-to-noise performance is optimized even if some of the binaural cues are sacrificed. In this embodiment, an optimum mix ratio or weighting ratio is determined in accordance with the ratio of noise power in the binaural signals. Enhancement circuitry is easily implemented in either analog or digital form and is compatible with existing sound processing methods, e.g., noise reduction algorithms and compression/expansion processing. The sound enhancement approach is compatible with, and additive to, any microphone directionality or noise cancelling technology.